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EXAMINER

MOMPER, ANNA M

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3657

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/537,336	Applicant(s) BRUNETIERE, BENOIT	
	Examiner ANNA MOMPER	Art Unit 3657	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-9 and 14-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 4-9, 16-26, 29 is/are rejected.
- 7) ☒ Claim(s) 14,15,27 and 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>11/24/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/24/2009 has been entered.

Response to Amendment

2. Amendment to the claims dated 11/24/2009 has been entered. Claims 1, 14-16 and 20-21 have been amended. Claims 2,10,11, and 13 have been cancelled. Claims 25-29 have been added.

Response to Arguments

3. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 1, 4-5, 16 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilder et al. (US 2003/0224888A1) in view of Laufenberg et al. (US 6,773,367).

As per claim 1, Wilder et al. discloses a transmission system comprising:

a first (20) and second (22) flexible link of the belt type, that couple a crankshaft (19) of a combustion engine (14) to a shaft (17) of an alternator- starter (12, [0026]);

a two-state coupling device (clutch 32 and clutch 38), wherein a first state of the two-state coupling device corresponds to a phase for starting the engine ([0029], the first state of the device is the starting phase of the engine in which the clutch 32 allows driven pulley 30 of the alternator-starter to freewheel or not transmit torque, and clutch 38 allows the driving clutch 28 of the alternator starter to transmit torque to the alternator-starter), in which the shaft of the alternator-starter drives the crankshaft of the engine with a first transmission ratio (transmission ratio corresponding to the ratio between driving pulley 34 of the engine and the driven pulley 30 of the alternator-starter), and a second state of the two-state coupling device corresponds to a phase in which the crankshaft of the engine drives the shaft of the alternator-starter ([0030]-

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[0031] second state corresponds to when the engine is started and the clutch 32 allows the driven pulley 30 of the alternator starter to transmit torque to the alternator-starter and clutch 38 allows the driving pulley 28 of the alternator starter to freewheel) with a second transmission ratio (transmission ratio corresponding to the ratio between driven pulley 36 of the engine and the driving pulley 28 of the alternator starter), and wherein the first transmission ratio is higher than the second transmission ratio (Fig. 3) and

a first (30) and a second (28) pulley coaxial with said shaft (17) of the alternator-starter, wherein, when the two-state coupling device is in the first state, the first pulley is coupled to the shaft of the alternator-starter to provide the first transmission ratio, and wherein, when the coupling device is in the second state, the second pulley is coupled to the shaft of the alternator-starter to provide the second transmission ratio ([0027]-[0031], [0042]),

Wilder et al. fails to explicitly disclose the two-state coupling device is arranged between the first and the second pulleys and includes at least one coupling element that moves longitudinally parallel to the axis of the shaft of the alternator-starter between two positions corresponding to the first and second coupling device states respectively as a function of the relative rotation speed between one of the first or second pulley and the shaft of the alternator-starter and wherein the longitudinally movable coupling element comprises a selector having a helical connection to the shaft of the alternator-starter, having at least a lateral face bearing a power transmission element, and facing a flank of one of the first and second pulleys, and a control element able to move with respect

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to the selector and generating a minimum torque that is required for the correct displacement of the selector along the helical connection.

Laufenberg et al. discloses a two-state coupling device (12) arranged between the first (36) and second (28) pulleys and includes at least one coupling element (78) that moves longitudinally parallel to the axis of the shaft of the alternator-starter (Fig. 3, Fig. 4) between two positions corresponding to the first and second coupling device states respectively (Fig. 3 wherein it's coupled to the first pulley 36 and Fig. 4 wherein it is coupled to the second pulley 28) as a function of the relative rotation speed between one of the first or second pulley and the shaft of the alternator-starter and wherein the longitudinally movable coupling element comprises a selector (62, 88) having a helical connection (68) to the shaft, having at least a lateral face bearing a power transmission element, and facing a flank (76, 72) of one of the first and second pulleys, and a control element (78) able to move with respect to the selector and generating a minimum torque that is required for the correct displacement of the selector along the helical connection (Col. 3, Ln. 60-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Wilder et al. to include the two-state coupling device is arranged between the first and the second pulleys and includes at least one coupling element that between two positions corresponding to the first and second coupling device states respectively, as taught by Laufenberg et al. for the purpose of selecting an appropriate method for engaging and disengaging the pulleys.

As per claim 4, Laufenberg et al. discloses the coupling device comprises a means (68, 80) placing the coupling device in its second state when the angular velocity of the shaft drop^s below the angular velocity of the second pulley.

As per claim 5, Wilder et al. discloses the first pulley has a diameter smaller than that of the second pulley (Fig. 3).

As per claim 16, Laufenberg et al. discloses the selector (62, 68) has a first and second lateral face bearing transmission elements (72, 76) and facing a flank of the first and second pulleys respectively (Fig. 3, Fig. 4), the control element (84) rotating as one with the selector for any longitudinal position of the selector (rotates together at all times) generating a torque which is dependent on the relative angular displacement between the selector and at least one of the first and second pulleys (generates a torque depending on if it is coupled to the first or second pulley).

As per claim 25, Laufenberg et al. discloses the helical connection is a helical cam path (68).

7. Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilder et al. (US 2003/0224888A1) in view of Laufenberg et al. (US 6,773,367) and further in view of Mueller (US 4,526,257).

As per claim 6, Wilder et al. discloses the first (20) and second (22) flexible links are mounted to connect, respectively, the first (30) and second pulleys (28) to pulleys (36, 34) fastened to the crankshaft (19) of the engine (14, Fig. 3).

Wilder et al. fails to explicitly disclose grooves on the surface of a pulley fastened to the crankshaft.

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Mueller discloses a variable speed accessory drive wherein a double pulley (Fig. 3) is attached to a shaft (38) driven by the crankshaft of the engine and wherein said double pulley has two sets of grooves (40, 44) for receiving a plurality of belts (42, 46).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transmission system of Wilder et al. to include a double pulley having grooves and fastened to the crankshaft of the engine, for the purpose of ensuring transmission of torque between the belt and the engine pulley.

As per claim 7, Wilder et al. discloses the first flexible link (20) is mounted between the first pulley (30) and a first pulley (34) of the engine, a second pulley (36) of the engine which receives the second flexible (22) link mounted between the second pulley (28) and the second pulley (36) fastened to the crankshaft of the engine.

Wilder et al. fails to explicitly disclose a double intermediate pulley fastened to the crankshaft and having two grooves for receiving the first and second flexible links.

Mueller discloses a variable speed accessory drive wherein a double pulley (Fig. 3) is attached to a shaft (38) driven by the crankshaft of the engine and wherein said double pulley has two sets of grooves (40, 44) for receiving a plurality of belts (42, 46).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transmission system of Wilder et al. to a double intermediate pulley fastened to the crankshaft and having two grooves for receiving the first and second flexible links., for the purpose of ensuring transmission of torque between the belt and the engine pulley.

As per claim 8, Wilder et al. discloses said first pulley (34) has a diameter greater than that of said second pulley (36, Fig. 2).

As per claim 9, Wilder et al. discloses a tensioning element (25, Fig. 1) arranged on a strand part of the second flexible link (22) between the intermediate pulley (pulleys of the engine) and the second pulley (28).

8. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilder et al. (US 2003/0224888 A1) in view of Laufenberg et al. (US 6,773,367) and further in view of Clark et al. (US 5,305,719).

As per claim 17, Laufenberg et al. discloses a means for the shaft to the first or second pulley (36, 28) via the coupling device (12) through the use of a splined connection. Modified Wilder fails to explicitly disclose the control element has an elastically deformable element which has a deformable regions which are in contact with the flank of the first and second pulleys.

Clarke et al. discloses a engine camshaft deactivation mechanism wherein a pulley (10) is engaged or disengaged to a shaft (14) selectively and the selective engagement is done through the use of a plate (20) connected via a plurality of flat springs (22) for fixed rotation about the shaft and the plate engaging with an electromagnetic coil (26) located on the pulley (10) to be selectively engaged.

It would have been obvious to one of ordinary skill in the art at the time of the invention to replace the splined transmitting connection of Laufenberg et al. with the flexible deformable springs and plate with corresponding electromagnetic coil of Clarke et al, for the purpose of selecting an appropriate transmission connection.

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9. Claims 18-19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilder et al. (US 2003/0224888 A1) in view of Laufenberg et al. (US 6,773,367) and further in view of Heimark (US 5,909,075).

As per claim 18, Modified Wilder et al. fails to explicitly disclose the control element has, on at least one lateral face, a magnetic element facing a complementary magnetic element borne by said flank of one of the first and second pulleys.

Heimark discloses a clutch for vehicle accessories in which a control element (Figure 1A is considered the control element assembly) has, on at least one lateral face, a magnetic element (20, Figure 1A, magnetic element 20 exists on both the left-most and right-most face of the control element assembly) facing a complementary magnetic element (28) borne by the flank of one of the first and second pulleys (32, Col. 4 Ln. 35-37, 39-41, 46-47).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transmission system of Modified Wilder et al. to include the control element has, on at least one lateral face, a magnetic element facing a complementary magnetic element borne by the flank of one of the first and second pulleys, as taught by Heimark, for the purpose of engaging the pulley and transferring rotational force between the pulley and the shaft (Col. 4 Ln. 38- 39).

As per claim 19, Laufenberg et al. discloses the selector (62, 68) has a first and second lateral face bearing transmission elements (72, 76) and facing a flank of the first and second pulleys respectively (Fig. 3, Fig. 4). Modified Wilder et al. fails to explicitly disclose the selector has an annular magnetic element arranged at its periphery and

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situated facing a complementary annular magnetic element fastened to the second pulley.

Heimark discloses a clutch for vehicle accessories in which a selector (Figure 1A) has an annular magnetic element arranged at its periphery (20, Figure 1A, magnetic element 20 exists on both the left-most and right-most face of the control element assembly) and situated facing a complementary annular magnetic (28) element fastened to the second pulley (32, Col. 4 Ln. 35-37, 39-41, 46-47).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transmission system of the Modified Wilder to include the selector has an annular magnetic element arranged at its periphery and situated facing a complementary annular magnetic element fastened to the second pulley, as taught by Heimark, for the purpose of providing for a locking engagement between members at the proper engine phase crank angle (Clark et al. Col 2. Ln. 46-47).

As per claim 21, Laufenberg et al. discloses the selector (62, 68) has a first and second lateral face bearing transmission elements (72, 76) and facing a flank of the first and second pulleys respectively (Fig. 3, Fig. 4). Modified Wilder et al. fails to explicitly disclose the selector has an annular magnetic element arranged at its periphery and situated facing a complementary annular magnetic element fastened to the second pulley and a control element (84) able to move relative to the selector. Modified Wilder et al. fails to explicitly disclose the selector having on at least one lateral face a magnetic element facing a complementary magnetic element borne by a flank of one of the first and second pulleys.

Heimark discloses a clutch for vehicle accessories in which a selector (Figure 1A) having on at least one lateral face a magnetic element (20, Figure 1A, magnetic element 20 exists on both the left-most and right-most face of the control element assembly) complementary magnetic element (28) borne by a flank of one of the first and second pulleys (32, Col. 4 Ln. 35-37, 39-41, 46-47).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transmission system of Modified Wilder et al. to include the selector having on at least one lateral face a magnetic element facing a complementary magnetic element borne by a flank of one of the first and second pulleys, as taught by Heimark, for the purpose of providing for a locking engagement between members at the proper engine phase crank angle.

10. Claims 20, 26 and 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilder et al. (US 2003/0224888 A1) in view of Laufenberg et al. (US 6,773,367), and further in view of Seung et al. (US 4,662,861).

As per claim 20, Modified Wilder et al. discloses all elements of the claimed invention as described above, but fail to explicitly disclose the selector has a friction element, which is situated at its periphery and is in contact with an annular region of the second pulley.

Seung et al. discloses a two speed accessory drive in which a selector (250) has a deformable friction element (258), which is situated at its periphery (uppermost periphery of 250, Figure 2) and is in contact with an annular region (256) of the second pulley (220).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transmission system of the Modified Wilder to include the selector has a friction element, which is situated at its periphery and is in contact with an annular region of the second pulley as taught by Seung et al. for the purpose of engaging and disengaging the pulley.

11. Claims 22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilder et al. (US 2003/0224888 A1) in view of Laufenberg et al. (US 6,773,367) and further in view of Mueller (US 4,526,257).and further in view of Man et al. (US 2002/0117860 A1).

Modified Wilder et al. fails to explicitly disclose the coupling device comprises a first and a second power transmission device that can be disengaged and that are mounted to act in opposition, the first being mounted coaxially with the first pulley and the second being mounted coaxially with the double intermediate pulley.

Man et al. discloses a transmission system wherein a dual pulley is used (Fig. 4) wherein a first and second pulley (334, 321) of the dual pulley are configured to engage with a separate belt, and having a two-state coupling device (309) which couples the first or the second pulley to the shaft depending on whether the engine is being started or is running ([0013] Ln. 14-19) and wherein the coupling device (309) comprises a first (320a and 320b) and a second (322a and 322b) power transmission device that can be unfastened ([0015], the clutches are capable of disengaging) and that are mounted to act in opposition ([0016], the clutches disengage or engage depending on the direction of the torque, whether from the engine or the alternator- starter, therefore they must act

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in opposition to each other), the first being mounted coaxially with the first pulley and the second being mounted coaxially with the double intermediate pulley (Figure 4, first 320a and 320b power transmission devices are mounted concentrically and coaxially with the first pulley, second 322a and 322b power transmission device are mounted concentrically and coaxially with the second pulley, Figure 4).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the transmission system of Modified Wilder et al. to include the coupling device comprises a means of detecting the direction of the driving torque so as to place the coupling device in its first or second state selectively, as taught by Man et al., for the purpose ensuring an smooth transition between the first and the second state.

As per claim 24, Man et al. also discloses the first (320a and 320b) and second (322a and 322b) disengagable transmission devices each comprise a free wheel ([0096] Ln. 2-3, transmission devices are described as "overrunning clutches" which are the same thing as a freewheel).

12. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wilder et al. (US 2003/0224888 A1) in view of Laufenberg et al. (US 6,773,367) and further in view of Mueller (US 4,526,257).and et al. (US 2002/0117860 A1). And further in view of Trout, Jr. (US 2,699,854).

Man et al. discloses the disengageable transmission devices act in opposition however, Modified Wilder fails to explicitly disclose the first and second disengagable transmission devices having helical connections.

Trout, Jr. discloses a clutch (24) operative between two pulleys (16, 19) wherein a helical connection (15) is used to guide the clutch into engagement or disengagement with each pulley.

It would have been oblivious to one of ordinary skill in the art at the time of the invention to modify the disengagable transmission devices of Man et al. to include a helical connection, as taught by Trout, Jr. for the purpose of guiding the disengagable transmission devices.

Allowable Subject Matter

13. Claims 14-15 and 27-28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANNA MOMPER whose telephone number is (571)270-5788. The examiner can normally be reached on M-F 6:00-3:30 (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Siconolfi can be reached on (571) 272-7124. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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am

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